ENOUGH
EUROPEAN FOOD CHAIN SUPPLY TO REDUCE GHG EMISSIONS BY 2050

Final practice abstract 2025

Final practice abstract - main outcomes from the ENOUGH project

The ENOUGH project developed predictive models for 2030 and 2050 emissions of the food supply chain relative to 1990 (and 2020) levels, showing that emissions from the food chain will remain persistently high without intervention. The transition to renewable electricity generation will not be sufficient on its own, additional measures like improving refrigeration systems, reducing food waste, and enhancing logistics are needed. ENOUGH developed tailored technological roadmaps for various stages of the food chain (retail, catering, storage, transport, domestic, food processing) across six countries, demonstrating how emission reductions of 40–50% are achievable through technological and operational measures.

Substantial emissions reductions can be achieved using technologies that already exist, and the 21 real-world ENOUGH demonstrations proves that these solutions are not only feasible but scalable, offering a clear path to decarbonising the food supply chain.

To helps users test different strategies and technologies to reduce emissions, the ENOUGH web-based tool is developed to simulate the food chain, calculating indicators like energy use and CO_2 emissions. Another developed web tool developed is the smart data systems (SDS), introducing a new multi-sided and multipart business application and framework that can provide a continuous improvement force to a vast set of food supply chains.

Reaching net-zero emissions will also require non-technological changes, like sufficient investments in clean technologies and solutions being allocated where needed. Current regulations are too general, and more targeted policies are needed for each stage of the food chain.

[1]*FAOSTAT Analytical Brief 50: GHG emissions from agrifood systems: Global, regional and country trends.*

ENOUGH webpage: https://enough-emissions.eu/
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